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A CONTINUATION OF

# FACTS AND OBSERVATIONS

RELATIVE TO THE

# *VARIOLÆ VACCINÆ.*

A

# CONTINUATION

OF

# FACTS AND OBSERVATIONS

RELATIVE TO THE

# VARIOLÆ VACCINÆ,

OR

# *COW POX.*

By EDWARD JENNER, M.D. F.R.S. F.L.S. &c.

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A CONTINUATION OF

# FACTS AND OBSERVATIONS,

*&c. &c.*

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SINCE my former publications on the Vaccine Inoculation, I have had the ſatisfaction of ſeeing it extend very widely. Not only in this country is the ſubject purſued with ardour, but from my correſpondence with many reſpectable medical gentlemen on the Continent, (among whom are *Dr. De Carro* of Vienna, and *Dr. Ballhorn* of Hanover) I find it is as warmly adopted abroad, where it has afforded the greateſt ſatisfaction. I have

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the pleaſure too of ſeeing that the feeble efforts of a few individuals to depreciate the new practice, are ſinking faſt into contempt beneath the immenſe maſs of evidence which has riſen up in ſupport of it.

Upwards of ſix thouſand perſons have now been inoculated with the virus of Cow Pox, and the far greater part of them have ſince been inoculated with that of Small Pox, and expoſed to its infection in every rational way that could be deviſed, without effect.

It was very improbable that the inveſtigation of a diſeaſe ſo analagous to the Small Pox, ſhould go forward without engaging the attention of the Phyſician of the Small Pox Hoſpital in London.

Accordingly, Dr. Woodville, who fills that department with ſo much reſpectability, took an early opportunity of inſtituting an Inquiry into the nature of the Cow Pox. This Inquiry was began in the early part of the preſent year, and in May, Dr.

Woodville publiſhed the reſult, which differs eſſentially from mine in a point of much importance. It appears that three-fifths of the patients inoculated were affected with eruptions, for the moſt part ſo perfectly reſembling the Small Pox, as not to be diſtinguiſhed from them. On this ſubject it is neceſſary that I ſhould make ſome comments.

When I conſider that out of the great number of Caſes of caſual inoculation immediately from cows, which have from time to time preſented themſelves to my obſervation, and the many ſimilar inſtances which have been communicated to me by medical gentlemen in this neighbourhood; when I conſider too that the matter with which my inoculations were conducted in the years 1797, 98, and 99, was taken from different cows, and that in no inſtance any thing like a variolous puſtule appeared, I cannot feel diſpoſed to imagine that eruptions, ſimilar to thoſe deſcribed by Dr. Woodville, have ever been produced by the *pure uncontaminated Cow Pock virus:* on the contrary, I do ſuppoſe that thoſe which the Doctor ſpeaks of, originated in the action of variolous matter,

which

which crept into the conſtitution with the vaccine. And this I preſume happened from the inoculation of a great number of the patients with variolous matter (ſome on the third, others on the fifth day) after the vaccine had been applied; and it ſhould be obſerved, that the matter thus propagated became the ſource of future inoculations in the hands of many medical gentlemen who appeared to have been previouſly unacquainted with the nature of the Cow Pox.

Another circumſtance ſtrongly, in my opinion, ſupporting this ſuppoſition, is the following: The Cow Pox has been known among our dairies time immemorial. If puſtules then, like the variolous, were to follow the communication of it from the cow to the milker, would not ſuch a fact have been known, and recorded at our farms? Yet, neither our farmers nor the medical people of the neighbourhood have noticed ſuch an occurrence.

A few ſcattered pimples I have ſometimes, though very rarely ſeen, the greater part of which have generally diſappeared quickly,

quickly, but ſome have remained long enough to ſuppurate at their apex. That local cuticular inflammation, whether ſpringing up ſpontaneouſly, or ariſing from the application of acrid ſubſtances, ſuch, for inſtance, as *Cantharides*, *Pix Burgundica*, *Antimonium Tartarizatum*, &c. will often produce cutaneous affections, not only near the ſeat of the inflammation, but on ſome parts of the ſkin far beyond its boundary, is a well-known fact. It is, doubtleſs, on this principle that the inoculated Cow-pock puſtule and its concomitant efflorescence may in very irritable conſtitutions produce this affection. The eruption I allude to, has commonly appeared ſome time in the third week after inoculation. But this appearance is too trivial to excite the leaſt regard.

The change which took place in the general appearance during the progreſs of the vaccine inoculation at the Small Pox Hoſpital ſhould likewiſe be conſidered.

Although at firſt it took on ſo much of the variolous character as to produce puſtules in three Caſes out of five, yet in Dr.

Woodville's laſt report, publiſhed in June, he ſays, " ſince the publication of my reports of inoculations for the Cow Pox, upwards of three hundred Caſes have been under my care; and out of this number, only thirty-nine had puſtules that ſuppurated: viz. out of the firſt hundred, nineteen had puſtules; out of the ſecond, thirteen; and out of the laſt hundred and ten, only ſeven had puſtules. Thus it appears that the diſeaſe has become conſiderably milder; which I am inclined to attribute to a greater caution uſed in the choice of the matter, with which the infection was communicated; for lately, that which has been employed for this purpoſe has been taken only from thoſe patients in whom the Cow Pox proved very mild and well characteriſed*."

The inference I am induced to draw from theſe premiſes is very different. The decline, and finally, the total extinction nearly of

* In a few weeks after the Cow Pox inoculation was introduced at the Small Pox Hoſpital, I was favoured with ſome virus from this ſtock. In the firſt inſtance it produced a few puſtules, which did not maturate; but in the ſubſequent caſes none appeared. E. J.

puſtules,

theſe puſtules, in my opinion, are more fairly attributable to the Cow Pox virus, aſſimilating the variolous*, the former probably being the original, the latter the ſame diſeaſe under a peculiar, and at preſent an inexplicable modification.

One experiment tending to elucidate the point under diſcuſſion, I had myſelf an opportunity of inſtituting. On the ſuppoſition of its being poſſible that the Cow which ranges over the fertile meadows in the vale of Glouceſter, might generate a virus differing in ſome reſpects in its qualities from that produced by the animal artificially pampered for the production of milk for the metropolis, I procured, during my reſidence there in the ſpring, ſome Cow Pock virus from a cow at one of the London milk-farms†. It was immediately conveyed into Glouceſter-

* In my firſt publication on this ſubject, I expreſſed an opinion that the Small Pox and the Cow Pox were the ſame diſeaſes under different modifications. In this opinion Dr. Woodville has concurred. The axiom of the immortal Hauter, that *two diſeaſed actions cannot take place at the ſame time in one and the ſame part*, will not be injured by the admiſſion of this theory.

† It was taken by Mr. Tanner, then a ſtudent at the Veterinary College, from a cow at Mr. Clark's farm at Kentiſh Town.

ſhire to Dr. Marſhall, who was then extenſively engaged in the inoculation of the Cow Pox, the general reſult of which, and of the inoculation in particular with this matter, I ſhall lay before my Readers in the following communication from the Doctor.

" Dear Sir,

" My neighbour Mr. Hicks having mentioned your wiſh to be informed of the progreſs of the inoculation here for the Cow Pox, and he alſo having taken the trouble to tranſmit to you my minutes of the Caſes which have fallen under my care, I hope you will pardon the further trouble I now give you in ſtating the obſervations I have made upon the ſubject. When firſt informed of it, having two children who had not had the Small Pox, I determined to inoculate them for the Cow Pox whenever I ſhould be ſo fortunate as to procure matter proper for the purpoſe. I was therefore particularly happy when I was informed that I could procure matter from ſome of thoſe whom you had inoculated. In the firſt inſtance, I had no intention of extending the diſeaſe further than my own family, but the

very extenſive influence which the conviction of its efficacy in reſiſting the Small Pox has had upon the minds of the people in general, has rendered that intention nugatory, as you will perceive by the continuation of my Caſes encloſed in this letter*, by which it will appear, that ſince the 22d of March, I have inoculated an hundred and ſeven perſons; which, conſidering the retired ſituation I reſide in, is a very great number. There are alſo other conſiderations which, beſides that of its influence in reſiſting the Small Pox, appear to have had their weight; namely, the peculiar mildneſs of the diſeaſe, the known ſafety of it, and its not having in any inſtance prevented the patient from following his ordinary buſineſs. In all the Caſes under my care, there have only occurred two or three which required any application owing to eryſipelatous inflammation on the arm, and they immediately yielded to it. In the remainder the conſtitutional illneſs has been ſlight but ſufficiently marked, and conſiderably leſs than I ever obſerved in the ſame

* Doctor Marſhall has detailed theſe Caſes with great accuracy, but their publication would now be deemed ſuperfluous. E. J.

number

number inoculated with the Small Pox. In only one or two of the Caſes have any other eruptions appeared than thoſe around the ſpot where the matter was inſerted, and thoſe near the infected part. Neither does there appear in the Cow Pox to be the leaſt exciting cauſe to any other diſeaſe, which in the Small Pox has been frequently obſerved, the conſtitution remaining in as full health and vigour after the termination of the diſeaſe as before the infection. Another important conſideration appears to be the impoſſibility of the diſeaſe being communicated except by the actual contact of the matter of the puſtule, and conſequently the perfect ſafety of the remaining part of the family, ſuppoſing only one or two ſhould wiſh to be inoculated at the ſame time.

" Upon the whole it appears evident to me, that the Cow Pox is a pleaſanter, ſhorter, and infinitely more ſafe diſeaſe than the inoculated Small Pox when conducted in the moſt careful and approved manner; neither is the local affection of the inoculated part, or the conſtitutional illneſs near ſo violent. I ſpeak with confidence on the ſubject, having had an opportunity

tunity of obſerving its effects upon a variety of conſtitutions, from three months old to ſixty years; and to which I have paid particular attention. In the Caſes alluded to here, you will obſerve that the removal from the original ſource of the matter has made no alteration or change in the nature or appearance of the diſeaſe, and that it may be continued, *ad infinitum,* (I imagine) from one perſon to another (if care be obſerved in taking the matter at a proper period) without any neceſſity of recurring to the original matter of the cow.

" I ſhould be happy if any endeavours of mine could tend further to elucidate the ſubject, and ſhall be much gratified in ſending you any further obſervations I may be enabled to make.

" I have the pleaſure to ſubſcribe myſelf,

" Dear Sir, &c.

Eaſtington, Glouceſterſhire,
April 26th, 1799. " JOSEPH H. MARSHALL."

The gentleman who favoured me with the above account, has continued to proſecute his inquiries with unremitting induſtry, and

and has communicated the result in another letter, which at his request I lay before the public without abbreviation.

## Dr. MARSHALL'S SECOND LETTER.

" Dear Sir,

" Since the date of my former letter, I have continued to inoculate with the Cow Pox virus. Including the cases before enumerated, the number now amounts to four hundred and twenty-three. It would be tedious and useless to detail the progress of the disease in each individual—it is sufficient to observe, that I noticed no deviation in any respect from the Cases I formerly adduced. The general appearances of the arm exactly corresponded with the account given in your first publication. When they were disposed to become troublesome by erysipelatous inflammation, an application of equal parts of vinegar and water always answered the desired intention. I must not omit to inform you that when the disease had duly acted upon the constitution, I have frequently used the vitriolic acid. A portion of a drop applied with the head of a probe or

any

any convenient utenſil upon the puſtule, ſuffered to remain about forty ſeconds, and afterwards waſhed off with ſponge and water, never failed to ſtop its progreſs, and expedite the formation of a ſcab.

" I have already ſubjected two hundred and eleven of my patients to the action of variolous matter, *but every one reſiſted it.*

" The reſult of my experiments (which were made with every requiſite caution) has fully convinced me that the *true Cow Pox* is a ſafe and infallible preventive from the Small Pox; that in no caſe which has fallen under my obſervation has it been in any conſiderable degree troubleſome, much leſs have I ſeen any thing like danger; for in no inſtance were the patients prevented from following their ordinary employments.

" In Dr. Woodville's publication on the Cow Pox, I notice an extraordinary fact. He ſays that the generality of his patients had puſtules. It certainly appears extremely extraordinary that

in all my Caſes there never was but one puſtule, which appeared on a patient's elbow on the inoculated arm, and maturated. It appeared exactly like that on the inciſed part.

" The whole of my obſervations, founded as it appears on an extenſive experience, leads me to theſe obvious concluſions; that thoſe Caſes which have been or may be adduced againſt the preventive powers of the Cow Pox, could not have been thoſe of the true kind, ſince it muſt appear to be abſolutely impoſſible that I ſhould have ſucceeded in ſuch a number of Caſes without a ſingle exception, if ſuch a preventive power did not exiſt. I cannot entertain a doubt that the inoculated Cow Pox muſt quickly ſupercede that of Small Pox. If the many important advantages which muſt reſult from the new practice are duly conſidered, we may reaſonably infer that public benefit, the ſure teſt of the real merit of diſcoveries, will render it generally extenſive.

" To you, Sir, as the diſcoverer of this highly beneficial practice, mankind are under the higheſt obligations. As a

private

private individual I participate in the general feeling; more particularly as you have afforded me an opportunity of noticing the effects of a ſingular diſeaſe, and of viewing the progreſs of the moſt curious experiment that ever was recorded in the Hiſtory of Phyſiology.

" I remain, Dear Sir, &c.

" JOSEPH H. MARSHALL.

" P. S. I ſhould have obſerved, that of the patients I inoculated and enumerated in my letter, one hundred and twenty-ſeven were infected with the matter you ſent me from the London cow. I diſcovered no diſſimilarity of ſymptoms in theſe caſes, from thoſe which I inoculated from matter procured in this country. No puſtules have occurred, except in one or two caſes, where a ſingle one appeared on the inoculated arm. No difference was apparent in the local inflammation. There was no ſuſpenſion of ordinary employment among the labouring people, nor was any medicine required.

" I have frequently inoculated one or two in a family, and the remaining part of it ſome weeks afterwards. The uninfected have ſlept with the infected during the whole courſe of the diſeaſe without being affected; ſo that I am fully convinced that the diſeaſe cannot be taken but by actual contact with the matter.

" A curious fact has lately fallen under my obſervation, on which I leave you to comment.

" I viſited a patient with the confluent Small Pox, and charged a lancet with ſome of the matter. Two days afterwards I was deſired to inoculate a woman and four children with the Cow Pox, and I inadvertently took the vaccine matter on the ſame lancet which was before charged with that of Small Pox. In three days I diſcovered the miſtake, and fully expected that my five patients would be infected with Small Pox; but I was agreeably ſurpriſed to find the diſeaſe to be the genuine Cow Pox, which proceeded without deviating in any particular from

my

my former caſes. I afterwards inoculated theſe patients with variolous matter, but all of them reſiſted its action.

" I omitted mentioning another great advantage that now occurs to me in the inoculated Cow Pox; I mean the ſafety with which pregnant women may have the diſeaſe communicated to them. I have inoculated a great number of females in that ſituation, and never obſerved their caſes to differ in any reſpect from thoſe of my other patients. Indeed the diſeaſe is ſo mild, that it ſeems as if it might at all times be communicated with the moſt perfect ſafety."

I ſhall here take the opportunity of thanking Dr. Marſhall and thoſe other gentlemen who have obligingly preſented me with the reſult of their inoculations; but, as they all agree in the ſame point as that given in the above communication, namely, the ſecurity of the patient from the effects of the Small Pox after the Cow Pox, their peruſal, I preſume, would afford us ſatisfaction that has not been amply given already. Particular occurrences I ſhall of courſe detail. Some of my correſ-

pondents

pondents have mentioned the appearance of Small Pox-like eruptions at the commencement of their inoculations; but in theſe caſes the matter was derived from the original ſtock at the Small Pox Hoſpital.

I have myſelf inoculated a very conſiderable number from the matter produced by Dr. Marſhall's patients, originating in the London cow, without obſerving puſtules of any kind, and have diſperſed it among others who have uſed it with a ſimilar effect. From this ſource Mr. H. Jenner informs me, he has inoculated above an hundred patients without obſerving eruptions. Whether the nature of the virus will undergo any change from being farther removed from its original ſource in paſſing ſucceſſively from one perſon to another, time alone can determine. That which I am now employing has been in uſe near eight months, and not the leaſt change is perceptible in its mode of action either locally or conſtitutionally. There is therefore every reaſon to expect that its effects will remain unaltered, and that we ſhall not be under the neceſſity of ſeeking freſh ſupplies from the cow.

The

The following obſervations were obligingly ſent me by Mr. Tierny, Aſſiſtant Surgeon to the South Glouceſter Regiment of Militia, to whom I am indebted for a former report on this ſubject.

" I inoculated with the Cow Pox matter from the 11th to the latter part of April, twenty-five perſons, including women and children. Some on the 11th were inoculated with the matter Mr. Shrapnell (Surgeon to the Regiment) had from you, the others with matter taken from theſe. The progreſs of the puncture was accurately obſerved, and its appearance ſeemed to differ from the Small Pox in having leſs inflammation around its baſis on the firſt days, that is, from the third to the ſeventh; but after this the inflammation increaſed, extending on the tenth or eleventh day to a circle of an inch and a half from its centre, and threatening very ſore arms; but this I am happy to ſay was not the caſe; for, by applying mercurial ointment to the inflamed part, which was repeated daily until the inflammation went off, the arm got well without any further application or trouble.

trouble. The conſtitutional ſymptoms which appeared on the eighth or ninth day after inoculation, ſcarcely deſerved the name of diſeaſe, as they were ſo ſlight as to be ſcarcely perceptible, except that I could connect a ſlight head-ache and langour, with a ſtiffneſs and rather painful ſenſation in the axilla. This latter ſymptom was the moſt ſtriking, it remained from twelve to forty-eight hours. In no caſe did I obſerve the ſmalleſt puſtule, or even diſcolouration of the ſkin like an incipient puſtule, except about the part where the virus had been applied.

" After all theſe ſymptoms had ſubſided, and the arms were well, I inoculated four of this number with variolous matter, taken from a patient in another regiment. In each of theſe it was inſerted ſeveral times under the cuticle, producing ſlight inflammation on the ſecond or third day, and always diſappearing before the fifth or ſixth; except in one who had the Cow Pox in Glouceſterſhire before he joined us, and who alſo received it at this time by inoculation. In this man the puncture

inflamed, and his arm was much ſorer than from the inſertion of the Cow Pox virus; but there was no pain in the axilla, nor could any conſtitutional affection be obſerved.

" I have only to add, that I am now fully ſatisfied of the efficacy of the Cow Pox in preventing the appearance of the Small Pox, and that it is a moſt happy and ſalutary ſubſtitute for it.

" I remain, &c.

" M. J. TIERNY."

Although the ſuſceptibility of the virus of the Cow Pox is for the moſt part loſt in thoſe who have had the Small Pox, yet in ſome conſtitutions it is only partially deſtroyed, and in others it does not appear to be in the leaſt diminiſhed.

By far the greater number, on whom trials were made, reſiſted it entirely; yet I found ſome on whoſe arms the puſtule from inoculation was formed completely, but without producing

the common efflorescent blush around it, or any constitutional illness, while others have had the disease in the most perfect manner. A case of the latter kind having been presented to me by Mr. Fewster, Surgeon, of Thornbury, I shall insert it.

" Three children were inoculated with the vaccine matter you obligingly sent me. On calling to look at their arms three days after, I was told that John Hodges, one of the three, had been inoculated with the Small Pox when a year old, and that he had a full burthen, of which his face produced plentiful marks, a circumstance I was not before made acquainted with. On the sixth day the arm of this boy appeared as if inoculated with variolous matter, but the pustule was rather more elevated. On the ninth day he complained of violent pain in his head and back, accompanied with vomiting and much fever. The next day he was very well, and went to work as usual. The punctured part began to spread, and there was the areola around the inoculated part to a considerable extent.

" As this is contrary to an assertion made in the Medical and

Phyſical Journal, No. 8, I thought it right to give you this information, and remain,

" Dear Sir, &c.

" J. Fewster."

It appears then that the animal economy with regard to the action of this virus is under the ſame laws as it is with reſpect to the variolous virus, after previouſly feeling its influence, as far as compariſons can be made between the two diſeaſes.

Some ſtriking inſtances of the power of the Cow Pox in ſuſpending the progreſs of the Small Pox after the patients had been ſeveral days caſually expoſed to the infection have been laid before me, by Mr. Lyford, Surgeon, of Wincheſter, and my nephew the Rev. G. C. Jenner. Mr. Lyford, after giving an account of his extenſive and ſucceſsful practice in the vaccine inoculation in Hampſhire, writes as follows :

" The following Caſe occurred to me a ſhort time ſince, and

may probably be worth your notice. I was ſent for to a patient with the Small Pox, and on inquiry found that five days previous to my ſeeing him the eruption began to appear. During the whole of this time two children, who had not had the Small Pox, were conſtantly in the room with their father, and frequently on the bed with him. The mother conſulted me on the propriety of inoculating them, but objected to my taking the matter from their father, as he was ſubject to eryſipelas. I adviſed her by all means to have them inoculated at that time, as I could not procure any variolous matter elſewhere. However, they were inoculated with vaccine matter, but I cannot ſay I flattered myſelf with its proving ſucceſsful, as they had previouſly been ſo long and ſtill continued to be expoſed to the variolous infection. Notwithſtanding this I was agreeably ſurpriſed to find the vaccine diſeaſe advance and go through its regular courſe; and, if I may be allowed the expreſſion, to the total extinction of the Small Pox."

Mr. Jenner's Caſes were not leſs ſatisfactory. He writes as follows:

" A ſon

" A ſon of Thomas Stinchcomb of Woodford, near Berkeley, was infected with the natural Small Pox at Briſtol, and came home to his father's cottage. Four days after the eruptions had appeared upon the boy, the family (none of which had ever had the Small Pox) conſiſting of the father, mother, and five children, was inoculated with vaccine virus. On the arm of the mother it failed to produce the leaſt effect, and ſhe of courſe had the Small Pox*, but the reſt of the family had the Cow Pox in the uſual mild way, and were not affected w th the Small Pox, although they were in the ſame room, and the children ſlept in the ſame bed with their brother who was confined to it with the natural Small Pox ; and ſubſequently with their mother.

" I attended this family with my brother Mr. H. Jenner."

The following Caſes are of too ſingular a nature to remain unnoticed.

* Under ſimilar circumſtances I think it would be adviſeable to inſert the matter into each arm, which would be more likely to inſure the ſucceſs of the operation. E. J.

Miſs

Miſs R——, a young lady about five years old, was ſeized on the evening of the eighth day after inoculation with vaccine virus, with ſuch ſymptoms as commonly denote the acceſſion of violent fever. Her throat was alſo a little ſore, and there were ſome uneaſy ſenſations about the muſcles of the neck. The day following a raſh was perceptible on her face and neck, ſo much reſembling the efflorescence of the *Scarlatina Anginoſa*, that I was induced to aſk whether Miſs R—— had been expoſed to the contagion of that diſeaſe. An anſwer in the affirmative, and the rapid ſpreading of the redneſs over the ſkin, at once relieved me from much anxiety reſpecting the nature of the malady, which went through its courſe in the ordinary way, but not without ſymptoms which were alarming, both to myſelf and Mr. Lyford, who attended with me. There was no apparent deviation in the ordinary progreſs of the puſtule to a ſtate of maturity, from what we ſee in general; yet there was a total ſuſpenſion of the *Areola* or florid diſcolouration around it, until the *Scarlatina* had retired from the conſtitution.

ſtitution. As ſoon as the patient was freed from this diſeaſe, this appearance advanced in the uſual way*.

The Caſe of Miſs H—— R—— is not leſs intereſting than that of her ſiſter above related. She was expoſed to the contagion of the *Scarlatina* at the ſame time, and ſickened almoſt at the ſame hour. The ſymptoms continued ſevere about twelve hours when the Scarlatine-raſh ſhewed itſelf faintly upon her face, and partly upon her neck. After remaining two or three hours it ſuddenly diſappeared, and ſhe became perfectly free from every complaint. My ſurpriſe at this ſudden tranſition from extreme ſickneſs to health, in great meaſure ceaſed when I obſerved that the inoculated puſtule had occaſioned, in this caſe, the common effloreſcent appearance around it, and that as it approached the centre it was nearly in an eryſipelatous

* I witneſſed a ſimilar fact in a caſe of Meaſles*. The puſtule from the Cow Pock virus advanced to maturity, while the Meaſles exiſted in the conſtitution, but no *effloreſcence* appeared around it until the Meaſles had ceaſed to exert its influence.

* See page 55.

ſtate.

ſtate. But the moſt remarkable part of this hiſtory is, that on the fourth day afterwards, as ſoon as the efflorescence began to die away upon the arm, and the puſtule to dry up, the *Scarlatina* again appeared, her throat became ſore, the raſh ſpread all over her. She went fairly through the diſeaſe, with its common ſymptoms.

That theſe were actually Caſes of *Scarlatina*, was rendered certain by two ſervants in the family falling ill at the ſame time with the diſtemper, who had been expoſed to the infection with the young ladies.

Some there are who ſuppoſe the ſecurity from the Small Pox obtained through the Cow Pox will be of a temporary nature only. This ſuppoſition is refuted not only by analogy with reſpect to the habits of diſeaſes of a ſimilar nature, but by incontrovertible facts, which appear in great numbers againſt it. To thoſe already adduced in the former part of my firſt Treatiſe*

* See pages 9, 11, 12, 13, 14, 20, &c.

many

many more might be added were it deemed neceſſary; but among the Caſes I refer to, one will be found of a perſon who had the Cow Pox fifty-three years before the effect of the Small Pox was tried upon him. As he completely reſiſted it, the intervening period I conceive muſt neceſſarily ſatisfy any reaſonable mind. Should further evidence be thought neceſſary, I ſhall obſerve that among the Caſes preſented to me by Mr. Fry, Mr. Darke, Mr. Tierny, Mr. H. Jenner, and others, there were many whom they inoculated ineffectually with variolous matter, who had gone through the Cow Pox many years before this trial was made.

It has been imagined that the Cow Pox is capable of being communicated from one perſon to another by effluvia without the intervention of inoculation. My experiments, made with the deſign of aſcertaining this important point, all tend to eſtabliſh my original poſition, that it is not infectious, except by contact. I have never heſitated to ſuffer thoſe on whoſe arms there were puſtules exhaling the effluvia, from aſſociating or even ſleeping with others who never had experienced either the Cow

Pox or the Small Pox. And further, I have repeatedly among children cauſed the uninfected to breathe over the inoculated vaccine puſtules during their whole progreſs, yet theſe experiments were tried without the leaſt effect. However, to ſubmit a matter ſo important to a ſtill further ſcrutiny, I deſired Mr. H. Jenner to make any further experiments which might ſtrike him as moſt likely to eſtabliſh or refute what had been advanced on this ſubject. He has ſince informed me, " that he inoculated children at the breaſt, whoſe mothers had not gone through either the Small Pox or the Cow Pox; that he had inoculated mothers whoſe ſucking infants had never undergone either of theſe diſeaſes; that the effluvia from the inoculated puſtules, in either caſe, had been inhaled from day to day during the whole progreſs of their maturation, and that there was not the leaſt perceptible effect from theſe expoſures. One woman he inoculated about a week previous to her *Accouchment*, that her infant might be the more fully and conveniently expoſed to the puſtule; but, as in the former inſtances, no infection was given, although the child frequently ſlept on the arm of its mother with its noſtrils and mouth expoſed to the puſtule in the fulleſt

fulleſt ſtate of maturity. In a word, is it not impoſſible for the Cow Pox, whoſe *only* manifeſtation appears to conſiſt in the puſtules *created by contact*, to produce *itſelf* by effluvia?

In the courſe of a late inoculation, I obſerved an appearance which it may be proper here to relate. The punctured part on a boy's arm (who was inoculated with freſh limpid virus) on the ſixth day, inſtead of ſhewing a beginning veſicle, which is uſual in the Cow Pox at that period, was encruſted over with a rugged amber-coloured ſcab. The ſcab continued to ſpread and increaſe in thickneſs for ſome days, when at its edges a veſicated ring appeared, and the diſeaſe went through its ordinary courſe, the boy having had foreneſs in the axilla, and ſome ſlight indiſpoſition. With the fluid matter taken from his arm, five perſons were inoculated. In one it took no effect. In another it produced a perfect puſtule without any deviation from the common appearance; but in the other three the progreſs of the inflammation was exactly ſimilar to the inſtance which afforded the virus for their inoculation; there was a creeping ſcab of a looſe texture, and ſubſequently the

formation of limpid fluid at its edges. As theſe people were all employed in laborious exerciſes, it is poſſible that theſe anomalous appearances might owe their origin to the friction of the clothes on the newly-inflamed part of the arm. I have not yet had an opportunity of expoſing them to the Small Pox.

In the early part of this Inquiry I felt far more anxious reſpecting the inflammation of the inoculated arm than at preſent; yet that this affection will go on to a greater extent than could be wiſhed is a circumſtance ſometimes to be expected. As this can be checked, or even entirely ſubdued by very ſimple means, I ſee no reaſon why the patient ſhould feel an uneaſy hour becauſe an application may not be abſolutely neceſſary. About the tenth or eleventh day, if the puſtule has proceeded regularly, the appearance of the arm will almoſt to a certainty indicate whether this is to be expected or not. Should it happen, nothing more need be done than to apply a ſingle drop of the *Aqua Lythargyr. Acctati** upon the puſtule, and having ſuffered it to remain two or three minutes, to cover the effloreſcence

* Extract of Saturn.

ſurrounding

ſurrounding the puſtule with a piece of linen dipped in the *Aqua Lythargyr. Compos.** The former may be repeated twice or thrice during the day, the latter as often as it may feel agreeableto the patient.

When the ſcab is prematurely rubbed off, (a circumſtance not unfrequent among children and working people) the application of a little *Aqua Lythargyri Acct.* to the part, immediately coagulates the ſurface, which ſupplies its place, and prevents a ſore.

In my former Treatiſes on this ſubject I have remarked that the human conſtitution frequently retains its ſuſceptibility of the Small Pox contagion (both from effluvia and contact) after previouſly feeling its influence. In further corroboration of this declaration, many facts have been communicated to me by various correſpondents. I ſhall ſelect one of them.

* Goulard Water. For further information on this ſubject ſee the firſt Treatiſe on the Var. Vac. Dr. Marſhall's Letters, &c.

"DEAR

" Dear Sir,

" Society at large muſt I think feel much indebted to you for your Inquiries and Obſervations on the Nature and Effects of the Variolæ Vaccinæ, &c. &c. As I conceive what I am now about to communicate to be of ſome importance, I imagine it cannot be unintereſting to you, eſpecially as it will ſerve to corroborate your aſſertion of the ſuſceptibility of the human ſyſtem of the variolous contagion, although it has previouſly been made ſenſible of its action. In November 1793, I was deſired to inoculate a perſon with the Small Pox. I took the variolous matter from a child under the diſeaſe in the natural way, who had a large burthen of diſtinct puſtules. The mother of the child being deſirous of ſeeing my method of communicating the diſeaſe by inoculation, after having opened a puſtule, I introduced the point of my lancet in the uſual way on the back part of my own hand, and thought no more of it until I felt a ſenſation in the part, which reminded me of the tranſaction. This happened upon the third day; on the fourth there were all the appearances common to inoculation, at which I was

not at all ſurpriſed, nor did I feel myſelf uneaſy upon perceiving the inflammation continue to increaſe to the ſixth and ſeventh day, accompanied with a very ſmall quantity of fluid, repeated experiments having taught me it might happen ſo with perſons who had undergone the diſeaſe, and yet would eſcape any conſtitutional affection: but I was not ſo fortunate; for on the eighth day I was ſeized with all the ſymptoms of the eruptive fever, but in a much more violent degree than when I was before inoculated, which was about eighteen years previous to this, when I had a conſiderable number of puſtules. I muſt confeſs I was now greatly alarmed, although I had been much engaged in the Small Pox, having at different times inoculated not leſs than two thouſand perſons. I was convinced my preſent indiſpoſition proceeded from the inſertion of the variolous matter, and therefore anxiouſly looked for an eruption. On the tenth day I felt a very unpleaſant ſenſation of ſtiffneſs, and heat on each ſide of my face near my ear, and the fever began to decline. The affection in my face ſoon terminated in three or four

puſtules

puſtules attended with inflammation, but which did not maturate, and I was preſently well.

" I remain, Dear Sir, &c.

" THOMAS MILES."

This Inquiry is not now ſo much in its infancy as to reſtrain me from ſpeaking more poſitively than formerly on the important point of Scrophula as connected with the Small Pox.

Every practitioner in medicine, who has extenſively inoculated with the Small Pox, or has attended many of thoſe who have had the diſtemper in the natural way, muſt acknowledge that he has frequently ſeen ſcrophulous affections, in ſome form or another, ſometimes rather quickly ſhewing themſelves after the recovery of the patients. Conceiving this fact to be admitted, as I preſume it muſt be by all who have carefully attended to the ſubject, may I not aſk whether it does not appear probable

probable that the general introduction of the Small Pox into Europe has not been among the moſt conducive means in exciting that formidable foe to health? Having attentively watched the effects of the Cow Pox in this reſpect, I am happy in being able to declare, that the diſeaſe does not appear to have the leaſt tendency to produce this deſtructive malady.

The ſcepticiſm that appeared even among the moſt enlightened of medical men when my ſentiments on the important ſubject of the Cow Pox were firſt promulgated, was highly laudable. To have admitted the truth of a doctrine, at once ſo novel and ſo unlike any thing that ever had appeared in the Annals of Medicine, without the teſt of the moſt rigid ſcrutiny, would have bordered upon temerity; but now, when that ſcrutiny has taken place, not only among ourſelves but in the firſt profeſſional circles in Europe, and when it has been uniformly found in ſuch abundant inſtances that the human frame, when once it has felt the influence of the genuine Cow Pox in the way that has been deſcribed, is never afterwards at any period of its exiſtence aſſailable by the Small Pox, may I not with perfect confidence

congratulate my country and ſociety at large on their beholding, in the mild form of the Cow Pox, an antidote that is capable of extirpating from the earth a diſeaſe which is every hour devouring its victims; a diſeaſe that has ever been conſidered as the ſevereſt ſcourge of the human race!

FINIS.

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